



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,157	06/24/2003	Robert J. Curran	POU920030007US1	9981
7590	03/21/2006			EXAMINER
Lawrence D. Cutter, Attorney IBM Corporation Intellectual Property Law Dept. 2455 South Rd., M/S P386 Poughkeepsie, NY 12601			EHNE, CHARLES	
			ART UNIT	PAPER NUMBER
			2113	
DATE MAILED: 03/21/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/602,157	CURRAN ET AL.
	Examiner Charles Ehne	Art Unit 2113

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 24 June 2003.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-34 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-34 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 7,9,10, 32 are rejected under 35 U.S.C. 102(e) as being unpatentable by Kano (US 2003/0135650).

As to claim 7, Kano discloses a method of accessing a file system, said method comprising the steps of:

creating an entry for a file with no attributes and no data and for which there is provided an indication that said file is in an unrestored state (page 4, ¶0075, lines 5-11); and

listing a file name for said file (page 4, ¶0075, lines 7-9).

As to claim 9, Kano discloses a method of accessing a file system, said method comprising the step of:

during restoration of said file system, upon access directed to a file in said system which possesses an indication of not yet being restored, restoring said file and changing said indication to reflect its restored status (page 4, ¶0075, lines 5-11).

As to claim 10, Kano discloses a method of claim 9 further including the step of accessing said file during the restoration of said file system (page 3, ¶0053).

As to claim 32, Kano discloses a computer program product, for file system restoration, stored on a machine readable medium having program means thereon for performing, during said restoration, the step of changing, for each file restored, a file status indicator from an unrestored indication, to a restored indication, following said file restoration (page 4, ¶0075, lines 5-11).

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 11 is rejected under 35 U.S.C. 102(b) as being unpatentable by Sakaki (6,230,239).

As to claim 11, Sakaki discloses a method of accessing a file system, said method comprising the step of during restoration of said file system, upon access directed to a file in said system which possesses an indication of not yet being restored, removing said file from said file system and skipping restoration of said file (column 5, lines 24-30 & columns 6-7, lines 18-23 & lines 66-5).

Claim 12 is rejected under 35 U.S.C. 102(b) as being unpatentable by Mogul (6,052,764).

As to claim 12, Mogul discloses a method of accessing a file system, said method comprising the step of during restoration of said file system, upon access directed to a file in said system which possesses an indication of not yet being restored,

adjusting scheduled file system restoration priority so that said accessed file is restored earlier within said scheduled sequence (column 4, lines 15-20 & column 5, lines 8-11).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-6 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US 2003/0135650) taken in view of Deshayes (6,047,294)

As to claim 1, Kano discloses a method of accessing a file system, said method comprising the steps of:

creating an entry for a file with limited attributes and no data and for which there is provided an indication that said file is in an unrestored state (page 4, ¶0075, lines 5-11). Deshayes fails to disclose permitting file system operations on said file, said

operations being selected from the group consisting of (1) listing file names for any such file; and (2) removing any such file.

Deshayes discloses a method for backing up and restoring data in a computer system (Abstract, lines 1-2), a discovery data table (DDTAB), which indicates the file names and locations corresponding to a file that is needed for the restore process (columns 9-10, lines 66-2). But Deshayes does disclose permitting file system operations on said file, said operations being selected from the group consisting of (1) listing file names for any such file (columns 9-10, lines 66-2); and (2) removing any such file (column 15, lines 45-47).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Deshayes' method of permitting operations of removing files and listing file names for any such file with Kano's method for indicating the state of the file entry. A person of ordinary skill in the art would have been motivated because the DDTAB file provides information for the file to be restored (Deshayes: column 15, lines 12-13) and by taking the file off line the file is prevented from processing the data while the restore is performed (Deshayes: column 15, lines 45-47).

As to claim 2, Kano discloses a method of claim 1 in which said accessing occurs during a restoration operation for the file system (page 4, ¶0074, lines 1-2).

As to claim 3, Kano discloses a method of claim 1 further including the steps of restoring said file having an unrestored state indication and changing said indication to reflect its restored status (page 4, ¶0075, lines 5-11).

As to claim 4, Kano discloses a method for restoring a file system comprising, during said restoration, the step of changing, for each file restored, a file status indicator from an unrestored indication, to a restored indication, following said file restoration (page 4, ¶0075, lines 5-11).

As to claim 5, Deshayes discloses a method of claim 4 further including the step of permitting access to a file for which said status indicator indicates that said file is in a restored state (column 15, lines 54-56).

As to claim 6, Deshayes discloses a method of claim 4 further including the step of temporarily suspending access, to a file for which said status indicator indicates that said file is in an unrestored state, until said file is restored (Deshayes: column 15, lines 45-47).

As to claim 31, Kano discloses a computer program product, for file system restoration, stored on a machine readable medium having program means thereon for creating an entry for a file with no attributes and no data and for which there is provided an indication that said file is in an unrestored state (page 4, ¶0075, lines 5-11).

Kano fails to disclose permitting file system operations on said file, said operations being selected from the group consisting of (a) listing a file name for said file; and (b) removing of said file.

Deshayes discloses a method for backing up and restoring data in a computer system (Abstract, lines 1-2), a discovery data table (DDTAB), which indicates the file names and locations corresponding to a file that is needed for the restore process (columns 9-10, lines 66-2). But Deshayes does disclose permitting file system

operations on said file, said operations being selected from the group consisting of (a) listing a file name for said file (columns 9-10, lines 66-2); and (b) removing of said file (column 15, lines 45-47).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Deshayes' method of permitting operations of removing files and listing file names for any such file with Kano's method for indicating the state of the file entry. A person of ordinary skill in the art would have been motivated because the DDTAB file provides information for the file to be restored (Deshayes: column 15, lines 12-13) and by taking the file off line the file is prevented from processing the data while the restore is performed (Deshayes: column 15, lines 45-47).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (US 2003/0135650) taken in view of Cary (4,875,159)

As to claim 8, Kano discloses a method of accessing a file system, said method comprising the steps of:

creating an entry for a file with no attributes and no data and for which there is provided an indication that said file is in an unrestored state (page 4, ¶0075, lines 5-11).

Kano fails to disclose removing a file name assigned to said file.

Cary discloses a method for replacing files in operating systems (column 2, lines 30-31). Cary also discloses removing a file name assigned to said file (column 2, lines 32-34).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Cary's method of removing a file name with Kano's method of accessing a file system. A person of ordinary skill in the art would have been motivated because by removing the file name no application program will have access to the file (Cary: column 2, lines 32-34).

Claims 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Howard (US 2002/0078244) taken in view of Kano.

As to claim 13, Howard discloses a method for restoring a file system comprising the steps of:

creating an empty file system of inodes (page 3, ¶0038, lines 3-7);
initializing a namespace for the file system (page 2, ¶0028, lines 4-9);
restoring a root directory for the file system (page 5, ¶0055, lines 4-8 & page 5, ¶0056, lines 11-14); and
restoring at least one file in said file (page 7, ¶0083).

Howard fails to disclose an indicator that provides an indication of whether the file's attributes and file data has been restored or not.

Kano discloses a confirmation bit that indicates whether or not the file has been restored (page 4, ¶0075, lines 5-11).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Kano's restored indication bit with Howard's inode data structure. A person of ordinary skill in the art would have been motivated because the inode may also include various file attributes, as desired (Howard: page 3, ¶0038,

lines 4-7) and the indicator bit allows the restoration process notification when all files have been restored (Kano: page 7, ¶0083, lines 9-12). This allows the system to return to normal operation.

As to claim 14, Howard discloses the method of claim 13 further including the step of accessing said file during said file restoration (page 7, ¶0083).

As to claim 15, Howard discloses the method of claim 14 further including the step of suspending access to said file in said file system until data in said file is restored (page 4, ¶0046, lines 2-6).

As to claim 16, Howard discloses a method for restoring a file system comprising the steps of:

creating an empty file system of inodes (page 3, ¶0038, lines 3-7);
initializing a namespace for the file system (page 2, ¶0028, lines 4-9);
restoring file system directory information for all of said file system (page 5, ¶0055, lines 4-8 & page 5, ¶0056, lines 11-14);
restoring at least one file in said file system (page 7, ¶0083); and
accessing said file during said file restoration (page 7, ¶0083).

Howard fails to disclose an indicator that provides an indication of whether the file's attributes and file data has been restored or not.

Kano discloses a confirmation bit that indicates whether or not the file has been restored (page 4, ¶0075, lines 5-11).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Kano's restored indication bit with Howard's inode

data structure. A person of ordinary skill in the art would have been motivated because the inode may also include various file attributes, as desired (Howard: page 3, ¶0038, lines 4-7) and the indicator bit allows the restoration process notification when all files have been restored (Kano: page 7, ¶0083, lines 9-12). This allows the system to return to normal operation.

As to claim 17, Howard discloses a method of claim 16 in which said restoring of said file system directory information is carried out recursively (page 7, ¶0083).

Claims 18-20 and 24-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano taken in view of Howard.

As to claim 18, Kano discloses a method for restoring a file system comprising the steps of:

creating an empty file system in which file system inodes are marked to indicate that neither file attributes nor file data are indicated as being restored (page 4, ¶0074, lines 5-11).

Kano restores said file system using a previously created table containing the associate file names

Kano's table fails to disclose associated inode numbers.

Howard discloses an object based storage system in which a file ID is provide to storage with read and write commands used for backing up and restoring data (page 1, ¶0006, lines 3-6). Howard also discloses an inode number within the block map (page 5, ¶0062, lines 2-6).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include Howard's inode number with the attributes of Kano's data list. A person of ordinary skill in the art would have been motivated because the inode number identifies the entry within the inode file to which the file belongs (Howard: page 5, ¶0062, lines 2-6).

As to claim 19, Howard discloses a method of claim 18 in which said table is processed in disjoint portions by different data processing nodes, whereby said restoration is carried out in parallel (page 2, ¶0027 & page 7, ¶0081, lines 8-9 & page 4, ¶0043).

As to claim 20, Howard discloses a method of claim 18 further including the step of spawning at least one other process to carry out said file system restoring (page 4, ¶0043).

As to claim 24, Kano discloses a method for restoring a file system comprising the steps of:

creating an empty file system in which file system inodes are marked to indicate that neither file attributes nor file data are indicated as being restored.

Kano restores said file system using a previously created table containing the associate file names

Kano's table fails to disclose associated inode numbers.

Howard discloses an object based storage system in which a file ID is provided to storage with read and write commands used for backing up and restoring data (page 1,

¶0006, lines 3-6). Howard also discloses an inode number within the block map (page 5, ¶0062, lines 2-6).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to include Howard's inode number with the attributes of Kano's data list. A person of ordinary skill in the art would have been motivated because the inode number identifies the entry within the inode file to which the file belongs (Howard: page 5, ¶0062, lines 2-6).

As to claim 25, Kano discloses a method of claim 24 in which file restoration is carried out for all of the files in said file system (page 4, ¶ 0075, lines 11-13).

As to claim 26, Kano discloses a method of claim 24 in which file restoration is carried out for a plurality of files in said file system (page 4, ¶ 0075, lines 11-13).

As to claim 27, Kano discloses a method of claim 25 in which said file restoration occurs in an order specified in said previously created table (page 4, ¶ 0075, lines 11-16 & ¶ 0076, lines 1-2).

As to claim 28, Kano discloses a method of claim 27 in which said file restoration occurs from files stored in a given order on another medium and said restoration occurs in an order based on the order present on said other medium (page 4, ¶ 0075, lines 2-5 & lines 13-15).

As to claim 29, Kano discloses a method of claim 28 in which said medium is tape (Figure 1.400, page 2, ¶ 0037, lines 1-6).

As to claim 30, Kano discloses a method of claim 24 in which said table was generated in a previously carried out file system backup operation (page 4, ¶ 0075, lines 1-5).

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano taken in view of Fleischmann (US 2004/0078641).

As to claim 21, Kano discloses a method for restoring a file system comprising the steps of:

creating an empty file system in which file system inodes are marked to indicate that neither file attributes nor file data are indicated as being restored (page 4, ¶ 0075, lines 5-11).

Kano fails to disclose restoring at least one file in said file system in a fashion in which attributes for said file are restored but for which data for said file is not immediately restored.

Fleischmann discloses a file restoration system wherein a restore agent provides the system with the names of files to be restored from the backup medium (Abstract: lines 5-9). Fleischmann also discloses restoring at least one file in said file system in a fashion in which attributes for said file are restored but for which data for said file is not immediately restored (Page 5, ¶ 0048, lines 5-8 & ¶ 0060).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Fleischmann's method of restoring at least one file in said file system in a fashion in which attributes for said file are restored but for which data for said file is not immediately restored with Kano method for restoring a file

system. A person of ordinary skill in the art would have been motivated because the system is able to ascertain the backed-up storage device's block size and other parameters to interpret the directory structure and file mapping information stored on the backup medium (Fleischmann: page 6, ¶0063, lines 3-15).

As to claim 22, Fleischmann discloses the method of claim 21 further including the step in which an application program accesses said file to ascertain said file's attributes but not the data content of said file (Page 5, ¶ 0048, lines 5-8 & ¶ 0060 & page 6, ¶ 0062, lines 4-14).

As to claim 23, Fleischmann discloses the method of claim 21 in which data for said file is restored at a time subsequent to restoration of said file's attributes (Page 5, ¶ 0048, lines 5-8 & ¶ 0060 & page 6, ¶ 0062, lines 4-14).

Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kano taken in view of basichardware.com taken further in view of Deshayes.

As to claim 33, Kano discloses a data processing system comprising:
a central processing unit (page 2, ¶0034, lines 5-6);
a memory (page 2, ¶0034, lines 5-6);
a nonvolatile storage device (Figure 1.400, page 2, ¶ 0037, lines 1-6);
program means for file system restoration, said program means being stored on a machine readable said program means including means for creating an entry for a file with no attributes and no data and for which there is provided an indication that said file is in an unrestored state (page 4, ¶0075, lines 5-11);

Kano fails to disclose what type the memory is used in the system and if it is used for storing data and programs for execution by said central processing unit.

Basichardware.com discloses that for random access memory is used for storing data and programs for execution by said central processing unit (page 7, lines 36-40);

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement RAM in Kano's data processing system. A person of ordinary skill in the art would have been motivated because RAM allows the CPU to have fast access to file, applications and other data (Basichardware.com: page 7, lines 36-40).

The combination of Kano and Basichardware.com fail to disclose permitting file system operations on said file, said operations being selected from the group consisting of (a) listing a file name for said file; and (b) removal of said file.

Deshayes discloses a method for backing up and restoring data in a computer system (Abstract, lines 1-2), a discovery data table (DDTAB), which indicates the file names and locations corresponding to a file that is needed for the restore process (columns 9-10, lines 66-2). Deshayes does also disclose permitting file system operations on said file, said operations being selected from the group consisting of (a) listing a file name for said file (columns 9-10, lines 66-2); and (b) removal of said file (column 15, lines 45-47).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement Deshayes' method of permitting operations of removing files and listing file names for any such file with Kano's method for indicating

the state of the file entry. A person of ordinary skill in the art would have been motivated because the DDTAB file provides information for the file to be restored (Deshayes: column 15, lines 12-13) and by taking the file off line the file is prevented from processing the data while the restore is performed (Deshayes: column 15, lines 45-47).

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kano taken in view of basichardware.com.

As to claim 34, Kano data processing system comprising:
a central processing unit (page 2, ¶0034, lines 5-6);
a memory (page 2, ¶0034, lines 5-6);
a nonvolatile storage device (Figure 1.400, page 2, ¶ 0037, lines 1-6);
program means for file system restoration, said program means being stored on a machine readable medium, for performing, during said restoration, the step of changing, for each file restored, a file status indicator from an unrestored indication, to a restored indication, following said file restoration (page 4, ¶0075, lines 5-11).

Kano fails to discloses what type the memory is used in the system and if it is used for storing data and programs for execution by said central processing unit.

Basichardware.com discloses that for random access memory is used for storing data and programs for execution by said central processing unit (page 7, lines 36-40);

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to implement RAM in Kano's data processing system. A person of ordinary skill in the art would have been motivated because RAM allows the CPU to

have fast access to file, applications and other data (Basichardware.com: page 7, lines 36-40).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Ehne whose telephone number is (571)-272-2471. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571)-272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



ROBERT BEAUSOLIEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100